

Title (en)

Process of producing human type II collagen

Title (de)

Verfahren zur Herstellung humanem Collagen typ II

Title (fr)

Procédé de production de protéine collagen type II

Publication

EP 2390326 A1 20111130 (EN)

Application

EP 11002048 A 20060331

Priority

- EP 06730889 A 20060331
- JP 2005102999 A 20050331

Abstract (en)

An objective of the present invention is to provide methods of producing human collagen molecules that are easy to isolate and purify and that have a structure substantially equivalent to that of a natural collagen molecule, wherein host cells that are transduced with a collagen gene synthesize large amounts of human collagen protein derived from a gene introduced into a high exogenous gene expression vector. Another objective of the present invention is to provide collagen molecules produced by the production methods. The present inventors discovered that a large amount of human collagen hardly contaminated with host cell-derived collagen could be produced, by selecting from various mammalian cells a host cell that has low collagen expression and introducing a collagen gene construct into a vector capable of high exogenous gene expression.

IPC 8 full level

C07K 14/78 (2006.01); **C12N 5/10** (2006.01); **C12N 15/09** (2006.01); **C12P 21/02** (2006.01)

CPC (source: EP KR US)

A61P 43/00 (2017.12 - EP); **C07K 14/78** (2013.01 - EP KR US); **C12N 5/10** (2013.01 - KR); **C12N 15/09** (2013.01 - KR);
C12P 21/02 (2013.01 - EP US)

Citation (applicant)

- JP H10179169 A 19980707 - IMMUNO JAPAN KK
- JP H07501939 A 19950302
- JP H0823979 A 19960130 - TERUMO CORP
- JP H01107857 A 19890425 - MITSUBISHI ELECTRIC CORP
- JP 2002325584 A 20021112 - JAPAN SCIENCE & TECH CORP, et al
- SURG. FORUM, vol. 10, 1960, pages 303
- J. SURG. RES., vol. 10, 1970, pages 485 - 491
- LANCET, vol. 342, 1993, pages 799
- SCIENCE, vol. 261, 1993, pages 1727 - 1730
- J. IMMUNOL., vol. 136, 1986, pages 877 - 882
- BIOMATERIALS, vol. 11, 1990, pages 176 - 180
- BIOCHEM. SOC., vol. 28, 2000, pages 350 - 353
- N. ENGL. J. MED., vol. 311, 1984, pages 376 - 386
- PROC. NATL. ACAD. SCI. USA., vol. 84, 1987, pages 764 - 768
- J. BIOL. CHEM., vol. 264, 1989, pages 20683 - 20687
- BIOCHEM. J., vol. 298, 1994, pages 31 - 37
- "Connective Tissue and Its Heritable Disorders", 1992, WEILY-LISS INC., pages: 145 - 165
- "Molecular Cloning", 1989, COLD SPRING HARBOR LABORATORY PRESS
- NATURE, vol. 227, 1970, pages 680 - 685
- MATSUDAIRA ET AL., J. BIOL. CHEM., vol. 261, 1987, pages 10035 - 10038

Citation (search report)

- [X] WO 9307889 A1 19930429 - UNIV JEFFERSON [US]
- [X] FUKUI NAOSHI ET AL: "Processing of type II procollagen amino propeptide by matrix metalloproteinases", JOURNAL OF BIOLOGICAL CHEMISTRY, vol. 277, no. 3, 18 January 2002 (2002-01-18), pages 2193 - 2201, XP002503361, ISSN: 0021-9258
- [X] ALA-KOKKO L ET AL: "Expression of a human cartilage procollagengene (COL2A1) in mouse 3T3 cells", JOURNAL OF BIOLOGICAL CHEMISTRY, THE AMERICAN SOCIETY OF BIOLOGICAL CHEMISTS, INC, US, vol. 266, no. 22, 1 August 1991 (1991-08-01), pages 14175 - 14178, XP003002954, ISSN: 0021-9258
- [X] STACEY A ET AL: "Rescue of type I collagen-deficient phenotype by retroviral-vector-mediated transfer of human pro alpha 1(I) collagen gene into Mov-13 cells", JOURNAL OF VIROLOGY, THE AMERICAN SOCIETY FOR MICROBIOLOGY, US, vol. 61, no. 8, 1 January 1987 (1987-01-01), pages 2549 - 2554, XP003002953, ISSN: 0022-538X

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)

EP 1870460 A1 20071226; EP 1870460 A4 20081224; EP 1870460 B1 20120530; EP 1870460 B9 20121205; AU 2006231795 A1 20061012; AU 2006231795 B2 20120216; AU 2006231795 B9 20120412; CA 2602611 A1 20061012; CA 2602611 C 20150929; CN 101171334 A 20080430; CN 101171334 B 20130327; DK 1870460 T3 20120903; DK 2390326 T3 20141013; EP 2383338 A1 20111102; EP 2383338 B1 20161019; EP 2390326 A1 20111130; EP 2390326 B1 20140709; ES 2387467 T3 20120924; ES 2489715 T3 20140902; HK 1164917 A1 20120928; JP 4892474 B2 20120307; JP WO2006106970 A1 20080925; KR 101304735 B1 20130905; KR 20070121809 A 20071227; PT 1870460 E 20120621; PT 2390326 E 20140805; US 2012172577 A1 20120705; US 9018354 B2 20150428; WO 2006106970 A1 20061012

DOCDB simple family (application)

EP 06730889 A 20060331; AU 2006231795 A 20060331; CA 2602611 A 20060331; CN 200680014951 A 20060331; DK 06730889 T 20060331; DK 11002048 T 20060331; EP 11002042 A 20060331; EP 11002048 A 20060331; ES 06730889 T 20060331; ES 11002048 T 20060331; HK 12105235 A 20120529; JP 2006306941 W 20060331; JP 2007511203 A 20060331; KR 20077024903 A 20060331; PT 06730889 T 20060331; PT 11002048 T 20060331; US 90987306 A 20060331